

## CLAIMS

What is claimed is:

1. A system for evaluating the condition of an item, the system comprising the components of:
  - 5 a sensor chamber including an interior area for housing an evaluation item, the interior area including a plurality of sensors;
  - a controller that is communicatively coupled to the plurality of sensors and operative to control the operation of the plurality of sensors and obtain data readings from the plurality of sensors;
  - 10 an information acquisition engine operable to receive information regarding the evaluation item;
  - a database containing expected results pertaining to the evaluation item; and
  - a damage calculator that is operable to compare the data readings from the plurality of sensors and the expected results from the database to identify particular
  - 15 characteristics pertaining to the evaluation item.
2. The system of claim 1, further comprising a console and, wherein the information acquisition engine is operable to receive information regarding the evaluation item from the console.
3. The system of claim 1, further comprising a network interface and, where the
- 20 information acquisition engine is operable to receive information regarding the evaluation by searching for information through the network interface, identifying sources for information and extracting the information.
4. The system of claim 3, wherein the network interface provides access to a manufacturing and industry data source.
5. The system of claim 1, further comprising a document capture device and wherein
- 25 the information acquisition engine is operable to receive information regarding the evaluation item through the document capture device.
6. The system of claim 1, wherein the controller is operable to initially control the plurality of sensors to obtain evaluation item identification information and, based at least in part
- 30 on the evaluation item identification information, is operative to control the plurality of sensors to obtain data readings from the plurality of sensors based at least in part on the evaluation item identification information.

7. The system of claim 6, wherein the database includes a plurality of control sequences and, the controller is operative to initially control the plurality sensors based on a particular control sequence selected from the plurality of control sequences.

8. The system of claim 6, wherein the database includes a plurality of control sequences and, the controller is operative to control the plurality sensors to obtain data readings based on a particular control sequence selected from the plurality of control sequences based at least in part on the evaluation item identification information.

9. The system of claim 1, wherein the sensor chamber includes a plurality of environmental controls and wherein the controller is further operative to control the state of the environmental controls.

10. The system of claim 6, wherein the sensor chamber includes a plurality of environmental controls and wherein prior to controlling the plurality of sensors to obtain data readings the control sets the state of the environmental controls based at least in part on the evaluation item identification information.

11. The system of claim 1, wherein the controller is operable to detect when the evaluation item is placed into the interior of the sensor chamber.

12. A method of performing an evaluation for an item, the evaluation assisting a decision maker in a decision regarding the item when the decision maker does not have direct access to the item, the method comprising the steps of:

5 detecting the presence of an evaluation item entered into a sensor chamber;  
execute a first sensor sequence to identify the evaluation item;  
based on the identification of the evaluation item, adjust the ambient environment condition of the sensor chamber and execute a second sensor sequence to obtain sensor sequence result data;  
10 comparing the sensor sequence result data to a set of expected data, the set of expected data selected at least in part on the results of executing the first sensor sequence; and  
identify any particular characteristics of the evaluation item based on differences between the sensor sequence result data and the set of expected data.

13. The method of claim 12, where in prior to executing the first sensor sequence, the method includes the step of entering preliminary data pertaining to the evaluation item, the  
15 preliminary data being operative to assist in identifying the item.

14. The method of claim 13, wherein the first sensor sequence utilized in the step of executing the first sensor sequence is selected based at least in part on at least a portion of the preliminary data.

15. The method of claim 14, wherein the second sensor sequence is selected from a  
20 plurality of sensor sequences based at least in part on the results of executing the first sensor sequence.

16. The method of claim 12, wherein the second sensor sequence is selected from a plurality of sensor sequences based at least in part on the results of executing the first sequence.

17. The method of claim 12, wherein the sensors in the sensor chamber can be moved  
25 and the step of adjusting the ambient environment condition of the sensor chamber further comprises the step of moving the sensors based at least in part on the results of executing the first sensor sequence.

18. The method of claim 12, wherein the expected data includes manufacturing and industry data pertaining to the evaluation item and the step of comparing sensor sequence result  
30 data to a set of expected data includes the steps of:

accessing the manufacturing and industry data based on the results of executing the first sensor sequence; and  
comparing the sensor sequence result data to the manufacturing and industry data.

19. The method of claim 12, further comprising the step of classifying the particular characteristics into one of a plurality of classes.

20. A system for evaluating the condition of an item to assist in making a decision regarding the item, the system comprising the components of:

a sensor chamber including an interior area for housing an evaluation item, the interior area including a plurality of electronically adjustable and moveable sensors and a plurality of environmental controls;

an information acquisition engine operable to receive information regarding the evaluation item;

a controller that is communicatively coupled to the plurality of sensors and environmental controls and operable to:

initially control the operation of the plurality of sensors and, in conjunction with any information obtained from the information acquisition engine, to identify the evaluation item;

in response to identifying the evaluation item, control the operation of the plurality of environment controls to establish an environmental setting within the sensor chamber that is conducive for further evaluation of the evaluation item; and

further control the operation of the plurality of sensors to move the sensors to an optimal position and obtain data readings from the plurality of sensors;

a database containing expected results pertaining to the evaluation item; and

a damage calculator that is operable to compare the data readings from the plurality of sensors and the expected results from the database to identify particular characteristics pertaining to the evaluation item.